



BURLINGTON CITY COUNCIL WORK SESSION AGENDA

March 2, 2015

**Municipal Building Conference Room
425 S. Lexington Avenue, Burlington, NC (222-5022)**

5:00 PM

A) Comprehensive Plan

David Beal
Assistant Director for Planning Services

B) Municipal Vehicle Tax Consideration

Charles Bateman

Burlington Transit System Update

Mike Nunn
*Transportation Planning Manager
Burlington-Graham MPO*

C) Staff Report – Water Resources Department

Bob Patterson
Water Resources Director

D) City Manager Comments

Memorandum

TO: Harold Owen, City Manager 
FROM: David W. Beal, Assistant Director for Planning Services
DATE: February 25, 2015
SUBJECT: Comprehensive Plan Presentation for March 2, 2015 Work Session

Staff would like to present an overview of the Comprehensive Plan project, Destination Burlington, to City Council at the March 2, 2015 Work Session. This project has been ongoing since February 2014 under the direction of RATIO Architects and the final draft is ready for City Council consideration. The Destination Burlington Steering Committee recommended approval of the draft at its January 23, 2015 meeting.

Following a formal presentation to City Council by RATIO at the April 6, 2015 Work Session, the item can be placed on the April 7, 2015 and April 21, 2015 City Council agendas to set a public hearing date and consider adoption of the plan, should the City Council choose to do so.

If you have questions regarding this request, please advise.

Burlington Transit System Update

City Council Work Session

March 2, 2015

Topics

- ❑ Transit Tax / Timing (Charles/Harold)
- ❑ Timeline (Mike Nunn)
- ❑ System Operations Update (Parsons Brinckerhoff – Lynn Purnell)
 - ❑ Transit System Design and Routes
 - ❑ Transit Bus Types
 - ❑ Operating Days/Hours
- ❑ Transit Advisory Commission (Charles/Harold)
- ❑ Summary of Recommendations

Transit Vehicle Tax

- \$5 Annual Municipal Vehicle Tax for Public Transportation (i.e. Transit Vehicle Tax)
- Allowed by State Statute 20-97
- Tax proceeds can only supplement, not replace, current funding.
“Cities and towns shall use the proceeds of the tax to supplement and not to supplant or replace existing funds or other resources for public transportation systems.”
- Alamance/Guilford counties need up to 8 weeks to get into system
- **Recommendation:** Approve transit vehicle tax tomorrow night with an effective date of July 1, 2015 to minimize impact to general fund.

Timeline

	Feb-15	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan-16	Feb	March	April	May	June	July
Transit Advisory Comm (TAC)																		
RFP for Transit Branding / Website																		
Name, Color, & Logo of System																		
Fare, Schedule & Routes/Service																		
Hours of Operation																		
Bus Order / Purchase																		
Release RFP for Service																		
Service Provider Contract Award																		
Begin Service																		

Recommendation: Late Spring to Early Summer 2016 Start-up with associated timeline shown in tonight's presentation.

Burlington Transit System Design

Lynn Purnell, Parsons Brinckerhoff

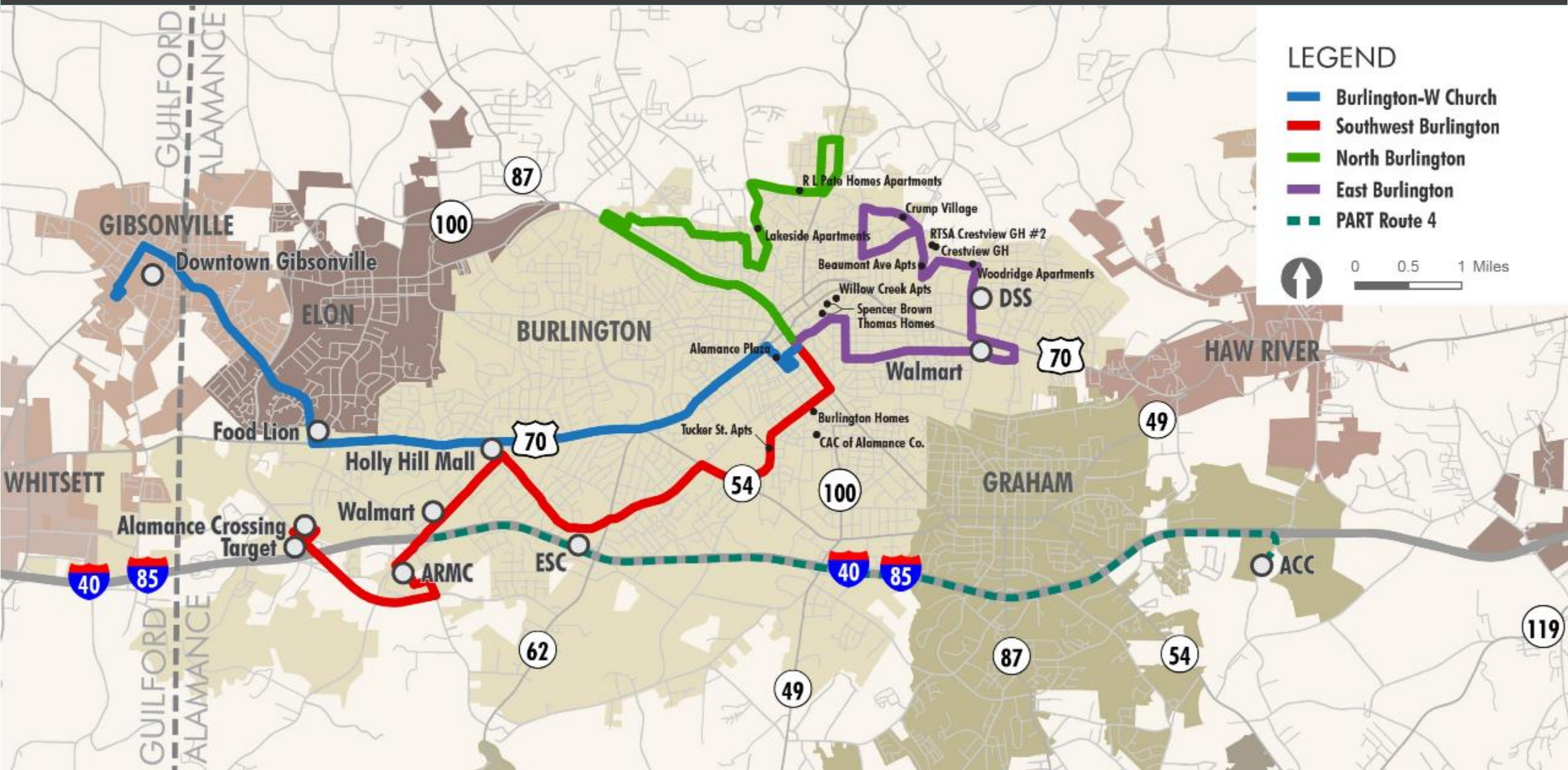
Local Considerations in Service Design

- Residential sites from Burlington Housing Authority
- Public service agencies
- Medical facilities and major shopping centers
- Areas with residents over 65
- Areas with persons living below poverty level
- Connections to PART and Elon Biobus routes
- Major thoroughfares (recognizing that passengers must walk to service)
- Sidewalks or ease of connecting to sidewalk system
- Safe locations for bus to stop for passengers

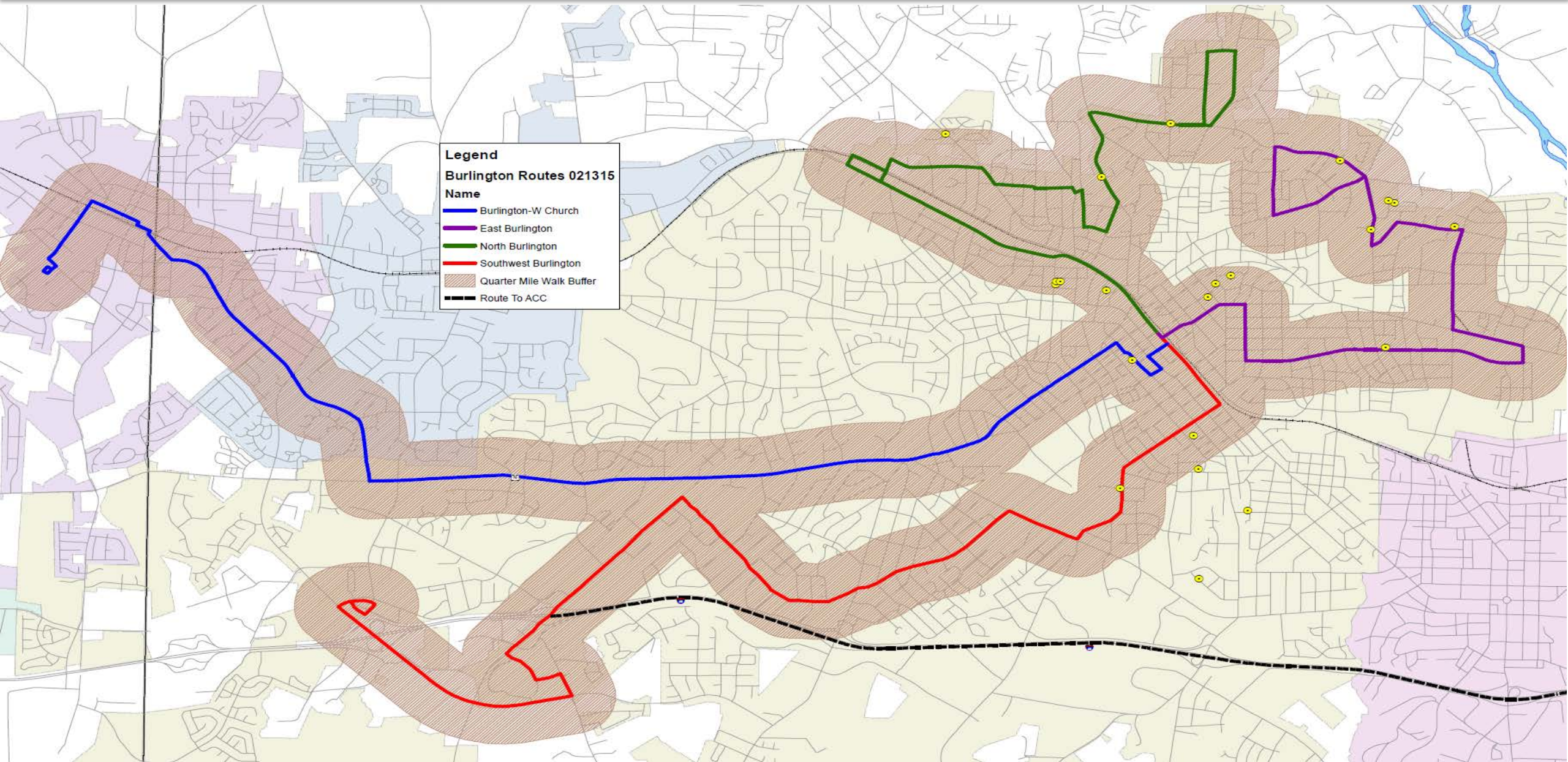
Recommended Routes

- Four routes with one bus each
- Schedules coordinated for transfers at downtown transit center near Amtrak station
- Routes based on **¼-mile** walking distance to stops
- Gibsonville customers can transfer at Holly Hill Mall to reach ARMC, Huffman Mill & Alamance Crossing
- Connects at ARMC Park & Ride to ACC and other destinations served by PART's Route 4-Alamance Burlington Express
- **Recommendation:** Use routes shown in tonight's presentation for the start of the system.

Recommended Routes



Recommended Routes with ¼ Mile Walk Area



Recommended Operating Hours & Schedules

- Operating hours – 5:30AM to 6:30PM
- Monday – Friday service
- Schedules designed for ARMC personnel to reach work by 7AM
- 45-minute travel time from end of route to downtown Burlington
- 90-minute service frequency (headway)
- **Recommendation:** Operating hours of 5:30am to 6:30pm with weekday service and 90 minute headways.

Transit Vehicle Options



Heavy Duty Transit Bus



Light Transit Vehicle

Recommended Vehicle – 28' Gasoline-powered LTV

- Estimated purchase price of \$150,000
- Front door wheelchair access
- 4-5 months delivery time
- Meets anticipated demand for service start-up
- City can consider bus purchase near end of 5-year LTV life if system usage warrants
- **Recommendation:** 28' Gasoline-Powered Light Transit Vehicle



Transit Advisory Commission

Transit Advisory Commission

- **Recommendation:** Appoint Transit Advisory Commission Members in June along with other board appointments; keep current applications valid but open the application period to coincide with that of other boards and commissions.
- Council will make all decisions needed for the system in the interim.

Summary of Recommendations

- Approve transit vehicle tax tomorrow night with an effective date of July 1, 2015 to minimize impact to general fund.
- Late Spring to Early Summer 2016 Start-up with associated timeline shown in tonight's presentation.
- Use the routes shown in tonight's presentation for the start of the system.
- Operating hours of 5:30am to 6:30pm with weekday service and 90 minute headways.
- 28' Gasoline-Powered Light Transit Vehicle
- Appoint Transit Advisory Commission Members in June along with other board appointments; keep current applications valid but open the application period to coincide with that of other boards and commissions.

Questions?

CITY OF BURLINGTON

PUBLIC TRANSIT FEASIBILITY STUDY UPDATE

Preliminary Recommendations

System Design & Vehicles

(DRAFT)

February 27, 2015

1.0 SYSTEM DESIGN

1.1 Industry Factors Used in Service Design

The Transportation Research Board's *Transit Capacity & Quality of Service Manual (TCQSM)*, which is a nationally recognized resource for designing fixed route routes and schedules, was used in transit service development for Burlington and Gibsonville. The TCQSM discusses the following factors from the transit customer's perspective based on national survey results:

- Comfort and Convenience
- Service Frequency
- Hours of Service
- Service Coverage
- Passenger Loading of Vehicles
- Reliability
- In-Vehicle Travel Time
- Route Directness
- Bus Stop Spacing
- Passenger Amenities at Bus Stops

1.2 Local Considerations in Service Design

In November 2014, the City of Burlington provided a draft of the Needs Assessment for the *2015-2020 Burlington Consolidated Plan* required by the U.S. Department of Housing and Urban Development (HUD). This preliminary information indicated that the northern and eastern sections of Burlington have the highest unemployment rates, greatest housing cost burden and lowest household incomes. The location of routes is based on system users walking a quarter of a mile to a bus stop. According to national passenger surveys, 50 to 80 percent of customers walk this distance to access public transportation.

The design of fixed-route transit services in Burlington and Gibsonville also reflects:

- Residential sites provided by the Burlington Housing Authority
- Public service agencies
- Medical facilities and major shopping centers
- Areas with the highest density of residences of persons 65 years and older based on 2010 U.S. Census data.
- Areas having the greatest concentrations of persons living below the poverty level based on 2010 U.S. Census data.
- Connections to PART and Elon Biobus routes to ensure service coordination
- Operation on major roads where feasible (recognizing that users must walk to service)
- Presence of sidewalks or relative ease to connect to existing sidewalk system

- Safe locations for passengers to board and alight from bus

1.3 Recommended Routes

The recommended transit system would include four routes with a vehicle operating on each route. Four vehicles would be needed for system operation with a fifth bus required as a spare vehicle. The routes will interconnect at a transit system hub near the Amtrak station in downtown Burlington so passengers can transfer easily between routes. **Figure 1** is a route map of the proposed Burlington/Gibsonville system.

As discussed in Section 1.2, routes are designed based on users walking to the fixed-route service. However, service to locations such as Burlington Senior Center or City Park will be evaluated for bus stops because persons going to these locations may have difficulty in walking to a transit route.

Trips to destinations outside of Burlington can be made by transferring to Route 4, Alamance Burlington Express, operated weekdays by the Piedmont Authority for Regional Transportation (PART). Passenger connections will occur at PART's park and ride lot at the Alamance Regional Medical Center (ARMC). Burlington residents wanting to travel to Alamance Community College (ACC) can connect to PART's express route at 7:40AM, 2:45PM and 3:40PM. ACC students and staff coming from the college would arrive at ARMC at 9:15AM, 12:15PM and 5:15PM.

Gibsonville residents using the Burlington-West Church route can transfer to or from the Southwest Burlington route at Holly Hill Mall in order to travel to ARMC, destinations along Huffman Mill Road and Alamance Crossing.

1.4 Recommended Operating Hours and Schedules

Transit service would operate weekdays from 5:30AM to 6:30PM. These operating hours are typical for transit systems in small to medium-sized cities in North Carolina. Weekday service will begin at the ends of the Burlington-West Church, North Burlington and East Burlington routes in order that passengers can connect to the Southwest Burlington route in downtown Burlington at 6:20AM. This schedule ensures that ARMC staff will arrive at work before 7:00AM.

Service will operate every 90 minutes with a one-way travel time of 45 minutes from the end of each of the four routes to downtown Burlington. Travel times have been estimated using an operating speed of 12 miles per hour, an industry accepted guideline. Although the route lengths are close to permitting one-way travel times of 30 minutes, the need to ensure on-time service for a new system start-up led to the 45-minute travel times.

Figure 1 includes a weekday schedule of the four proposed routes. The locations included in the schedule are primary time points. Each route will include more bus stops so customers can board and alight as required by bus system usage.

1.5 Service Revisions

Following system start-up, routes and schedules must be monitored for acceptable performance. Because the vehicles will be equipped with automatic passenger counters, passenger use by route segment and time of day can be tracked. Bus routes and schedules should be changed to respond to customer desires. Examples of such changes include re-

routing to different streets, shortening or lengthening daily operating hours, or re-installing a bus stop sign.

When considering transit system expansion, the factors discussed in Section 1.2 should be considered along with:

- New trip destinations not currently served, including employment centers, medical facilities, public facilities or other attractions.
- Citizen demand expressed through the system's customer service center or website, or through attendance and comments at public meetings

1.6 Projected Operating Budget for Recommended System

Table 2 summarizes forecasted revenues and expenses for providing transit services during the first year of operation.

TABLE 2: First Year Financial Estimates

	Burlington/Gibsonville System
REVENUES	\$1,008,000
<i>Passenger</i>	<i>\$100,000</i>
<i>Federal Government</i>	<i>\$454,000</i>
<i>Local Government</i>	<i>\$454,000</i>
EXPENSES	\$1,008,000

Because hourly operating costs will not be known until potential service providers submit bids, the following assumptions were used to forecast costs and revenues:

- Operating expenses for fixed-route service were estimated at an hourly cost of \$72. This amount is comparable to the rates being charged to the cities of Concord and Kannapolis by a private company, which operates the RIDER system. This hourly figure includes fuel costs, but it represents transit operations only. The estimate does not include capital costs associated with vehicle acquisition; purchase and installation of bus stop shelters, benches and signs; or sidewalk construction. The annual estimate is based on daily operation of 51 hours and 255 operating days per year. Daily operating hours is based on three routes operating 13 hours and one route running 12 hours. The total also includes \$68,000 for complementary paratransit service in those areas where the four routes operate.
- Passenger revenues were estimated using a fare recovery ratio (revenue to cost comparison) of about 10 percent. This recovery factor is consistent with 2012 experience of the North Carolina peer transit systems and reflects expected transit patronage during system start-up. Expected annual patronage would be 100,000 passengers, or about 8 passengers per hour during the first year of operation.
- Federal grant revenues will cover 50 percent of the operating deficit.

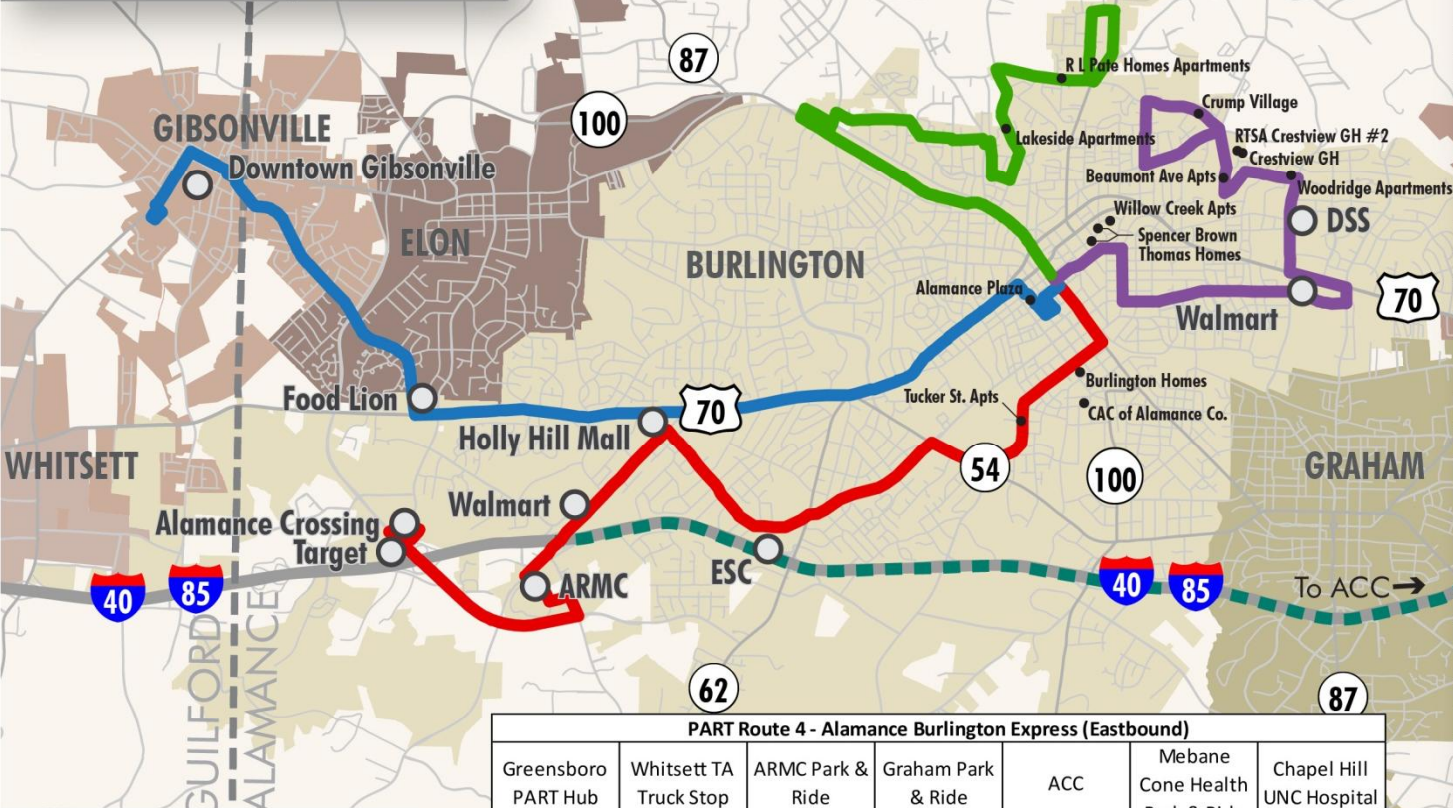
Because only two jurisdictions will be sharing operating costs, Gibsonville's allocated cost is based on the number of service hours operated outside of Burlington. Approximately 8 percent of daily service hours would be operated outside of Burlington in order to access Gibsonville. **Gibsonville's annual share of forecasted operating costs will equal \$35,000 resulting in Burlington's estimated share being \$419,000.**

The proposed four-route system corresponds to an initial financial investment identified by Burlington and Gibsonville for transit service start-up. As customer demand increases, a need to extend routes and lengthen operating hours, including weekend service, could surface. Transit system success will depend on leadership and support of elected officials, local staff and residents of Burlington and Gibsonville.

FIGURE 1 Proposed Transit System

FIRST YEAR FINANCIAL ESTIMATES	
REVENUES	
Passenger	\$100,000
Federal Government	\$454,000
Local Government	\$454,000
TOTAL REVENUE	\$1,008,000
TOTAL EXPENSES	\$1,008,000

SYSTEM FACTS	
Number of Routes	4
Number of Buses	4
Days of Operation	Mon.-Fri.
Hours of Operation	5:30 AM - 6:30 PM



LEGEND

- Burlington-W Church
- Southwest Burlington
- North Burlington
- East Burlington
- PART Route 4



PART Route 4 - Alamance Burlington Express (Eastbound)						
Greensboro PART Hub	Whitsett TA Truck Stop	ARMC Park & Ride	Graham Park & Ride	ACC	Mebane Cone Health Park & Ride	Chapel Hill UNC Hospital
6:10			6:55		7:09	7:45
7:10	7:35	7:40	7:50	7:55	8:09	8:45
2:10		2:45	2:55	3:00	3:14	3:50
3:10	3:35	3:40	3:50	3:55	4:09	4:45

PART Route 4 - Alamance Burlington Express (Westbound)						
Chapel Hill UNC Hospital	Mebane Cone Health Park & Ride	ACC	Graham Park & Ride	ARMC Park & Ride	Whitsett TA Truck Stop	Greensboro PART Hub
8:10	8:45	9:00	9:05	9:15		9:50
11:10	11:45	12:00	12:05	12:15	12:20	12:45
4:10	4:45	5:00	5:05	5:15	5:20	5:45
5:10	5:45		6:00	6:10		6:45

GREEN ROUTE								
Downtown Burlington	Glen Raven	Lakeside Apt.	RL Pate Homes	Rahut & Hazel	RL Pate Homes	Lakeside Apt.	Glen Raven	Downtown Burlington
				5:35	5:45	5:50	6:05	6:20
6:30	6:45	7:00	7:05	7:15	7:25	7:30	7:45	8:00
8:00	8:15	8:30	8:35	8:45	8:55	9:00	9:15	9:30
9:30	9:45	10:00	10:05	10:15	10:25	10:30	10:15	11:00
11:00	11:15	11:30	11:35	11:45	11:55	12:00	11:45	12:30
12:30	12:45	1:00	1:05	1:15	1:25	1:30	1:45	2:00
2:00	2:15	2:30	2:35	2:45	2:55	3:00	3:15	3:30
3:30	3:45	4:00	4:05	4:15	4:25	4:30	4:45	5:00
5:00	5:15	5:30	5:35	5:45	5:55	6:00	6:15	6:30

PURPLE ROUTE								
Downtown Burlington	Mebane & Queen Ann	Wal-Mart	Dept of Social Services	North Park Library	Dept of Social Services	Wal-Mart	Mebane & Queen Ann	Downtown Burlington
				5:35	5:45	5:55	6:05	6:20
6:30	6:40	6:50	7:00	7:15	7:30	7:40	7:50	8:00
8:00	8:10	8:20	8:30	8:45	9:00	9:10	9:20	9:30
9:30	9:40	9:50	10:00	10:15	10:30	10:40	10:50	11:00
11:00	11:10	11:20	11:30	11:45	12:00	12:10	12:20	12:30
12:30	12:40	12:50	1:00	1:15	1:30	1:40	1:50	2:00
2:00	2:10	2:20	2:30	2:45	3:00	3:10	3:20	3:30
3:30	3:40	3:50	4:00	4:15	4:30	4:40	4:50	5:00
5:00	5:10	5:20	5:30	5:45	6:00	6:10	6:20	6:30

RED ROUTE								
Downtown Burlington	Tucker Street Apts.	Holly Hill Mall	ARMC	Alamance Crossing	ARMC	Holly Hill Mall	Tucker Street Apts.	Downtown Burlington
6:20	6:30	6:40	6:50	7:15	7:30	7:40	7:50	8:00
8:00	8:10	8:20	8:30	8:45	9:00	9:10	9:20	9:30
9:30	9:40	9:50	10:00	10:15	10:30	10:40	10:50	11:00
11:00	11:10	11:20	11:30	11:45	12:00	12:10	12:20	12:30
12:30	12:40	12:50	1:00	1:15	1:30	1:40	1:50	2:00
2:00	2:10	2:20	2:30	2:45	3:00	3:10	3:20	3:30
3:30	3:40	3:50	4:00	4:15	4:30	4:40	4:50	5:00
5:00	5:10	5:20	5:30	5:45	6:00	6:10	6:20	6:30

BLUE ROUTE								
Downtown Burlington	Spoons Plaza	Holly Hill Mall	Food Lion	Harper Senior Center	Food Lion	Holly Hill Mall	Spoons Plaza	Downtown Burlington
				5:35	5:50	6:00	6:10	6:20
6:30	6:40	6:50	7:00	7:15	7:30	7:40	7:50	8:00
8:00	8:10	8:20	8:30	8:45	9:00	9:10	9:20	9:30
9:30	9:40	9:50	10:00	10:15	10:30	10:40	10:50	11:00
11:00	11:10	11:20	11:30	11:45	12:00	12:10	12:20	12:30
12:30	12:40	12:50	1:00	1:15	1:30	1:40	1:50	2:00
2:00	2:10	2:20	2:30	2:45	3:00	3:10	3:20	3:30
3:30	3:40	3:50	4:00	4:15	4:30	4:40	4:50	5:00
5:00	5:10	5:20	5:30	5:45	6:00	6:10	6:20	6:30

2.0 VEHICLES

2.1 Introduction

Purchasing public transit vehicles can be considered a business decision, with the objective of making the best use of available resources. The decision involves buying a vehicle which suits the expected travel needs of Burlington and Gibsonville residents. To address the financial questions about vehicle purchase, an economic model, **Small Transit Vehicle economics (STVe)**, was used to evaluate different vehicle types. The model, developed in 2000 under TRB's Transit Cooperative Research Program compares the future cost differences of smaller vehicles by incorporating factors such as bus purchase price, fuel and tires, and maintenance labor and parts.



Tar River Transit Bus in Rocky Mount, NC



There are important non-financial variables that must be considered in the decision-making process for vehicle acquisition. The two primary vehicle classifications considered for system start-up in Burlington and Gibsonville are 1) 28-foot, 18-passenger gasoline-powered light transit vehicle (LTV) or 2) 35-foot, 32-passenger diesel-powered heavy-duty bus.

Non-financial variables for the heavy-duty bus include:

- Twelve year life expectancy
- Eleven month delivery time
- Major systems and components designed for frequent stops

- Higher seating capacity and wider aisles (more accommodating of standees)
- Two entry/exit doors
- Superior ride quality for customers
- Greater turning radius
- More complex maintenance requirements

Non-financial considerations in LTV purchase are:

- Five year life cycle
- Four month delivery period
- Lower seating capacity which could result in overcrowding and reduced passenger use
- Single door, which makes it more difficult for passengers to enter and exit the LTV and slows down route operations (increasing costs)
- Design makes vehicles less intrusive
- Shorter turning radius
- Must have wheelchair access at front door similar to heavy-duty bus
- Less complex systems and components make it easier to drive and maintain

2.2 Vehicle Purchase Recommendation

The 28-foot gasoline-powered LTV is recommended for Burlington-Gibsonville transit system start-up because:

- The purchase price of the LTV (\$150,000) is about 70 percent below the acquisition cost of a heavy-duty bus (\$500,000). The purchase prices for both vehicles include needed equipment such as fareboxes, radios and driver/passenger surveillance cameras.
- The **STVe** analysis for small transit vehicles indicated that the LTV has an estimated annual operating cost that is less than half of the heavy-duty bus's operating cost.
- A model exists where wheelchair access is provided at the vehicle's front door.
- The LTV's delivery time is considerably shorter.
- The LTV's capacity may be a better match for potential customer demand, particularly in light of service start-up in a new market.

As transit ridership grows with system operation, the City can consider the purchase of heavy-duty buses near the end of the LTV's five-year life expectancy.